

AMENDMENTS TO THE CLAIMS

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1. (Currently Amended) A single element objective lens for an optical disc drive, said objective lens converging a laser beam emitted by a laser source on a data recording surface of an optical disc through a protective layer of the optical disc,

ad wherein one surface of said objective lens is divided into a central area including an optical axis of said objective lens and a peripheral area surrounding said central area, an area of said peripheral area being not greater than an area of said central area, said central area being formed as a continuous surface having no stepped portions, said peripheral area is provided with a diffraction lens structure formed by a plurality of concentric annular zones including minute steps, said diffraction lens structure being configured to compensate for variation of a converging characteristic of said objective lens due to a change of a temperature.

2. (Cancelled)

3. (Currently Amended) The objective lens according to claim 1, wherein said diffraction lens structure is configured to have a characteristic ~~in terms of a spherical aberration~~ such that the spherical aberration changes in an under corrected direction when a wavelength of the laser beam incident on said objective lens increases.

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4. (Currently Amended) The objective lens according to claim 1, ~~which wherein~~  
~~said objective lens is formed of a plastic lens with~~, a refractive index ~~of which is lowered~~  
that decreases when the temperature increases, a wavelength of the laser beam increasing  
when the temperature increases.

5. (Currently Amended) A single element objective lens for an optical disc drive,  
said objective lens converging a laser beam emitted by a laser source on a data recording  
surface of an optical disc through a protective layer of the optical disc,

wherein one surface of said objective lens is divided into a central area including  
an optical axis of said objective lens and a peripheral area surrounding said central area,  
an area of said peripheral area being not greater than an area of said central area, a  
diffraction lens structure formed by a plurality of concentric annular zones including  
minute steps being formed only in said peripheral area, said diffraction lens structure  
being configured to compensate for variation of a converging characteristic of said  
objective lens due to a change of a temperature.

6. (Currently Amended) The objective lens according to claim 5, ~~which wherein~~  
~~said objective lens is formed of a plastic lens with~~, a refractive index ~~of which is lowered~~  
that decreases when the temperature increases, a wavelength of the laser beam increasing

when the temperature increases.

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7. (Currently Amended) An optical system of an optical head for an optical disc drive, comprising:

a laser source unit that emits a laser beam; and

a single element objective lens that converges a laser beam emitted by said laser source unit on a data recording surface of an optical disc through a protective layer of the optical disc,

wherein one surface of said objective lens is divided into a central area including an optical axis of said objective lens and a peripheral area surrounding said central area, an area of said peripheral area being not greater than an area of said central area, said peripheral area being provided with a diffraction lens structure formed by a plurality of concentric annular zones including minute steps, said diffraction lens structure being configured to compensate for variation of a converging characteristic of said objective lens due to a change of a temperature.

8. (Currently Amended) The optical system according to claim 7, wherein said central area is ~~formed~~ as a continuous surface having no stepped portions.

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9. (Original) The optical system according to claim 7, wherein said laser source unit selectively emits one of a first laser beam and a second laser beam, a wavelength of said second laser beam being longer than a wavelength of said first laser beam, said second laser beam being incident on said objective lens as a diverging beam, said first laser beam being incident on said objective lens as a beam having less divergence than said second laser beam, said objective lens converging the first laser beam on a data recording surface of a first optical disc through a first protective layer of the first optical disc, said objective lens converging the second laser beam on a data recording surface of a second optical disc through a second protective layer of the second optical disc, a data density of the first optical disc being higher than a data density of the second optical disc, a thickness of the first protective layer being smaller than a thickness of the second protective layer.

10. (Currently Amended) The optical system according to claim 7, wherein a wavelength of the laser beam emitted by said laser source unit increases when the temperature increases, and wherein said objective lens is ~~formed of plastic~~, with a refractive index ~~of which being lowered when that decreases as~~ the temperature increases.

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cancel

11. (Currently Amended) The ~~objective lens~~ optical system according to claim 7, wherein said diffraction lens structure has a characteristic ~~in terms of a spherical aberration~~ such that the spherical aberration of said objective lens changes in an under corrected direction when a wavelength of the laser beam incident on said objective lens increases.

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12. (New) An optical system of an optical head for an optical disc drive, comprising:

- a laser source unit that emits a laser beam; and
- a single element objective lens that converges a laser beam emitted by said laser source unit on a data recording surface of an optical disc through a protective layer of the optical disc, one surface of said objective lens being divided into a central area including an optical axis of said objective lens and a peripheral area surrounding said central area, said peripheral area being provided with a diffraction lens structure formed by a plurality of concentric annular zones including minute steps, said diffraction lens structure being configured to compensate for variation of a converging characteristic of said objective lens due to a change of a temperature;

wherein said laser source unit selectively emits one of a first laser beam and a second laser beam, a wavelength of said second laser beam being longer than a

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wavelength of said first laser beam, said second laser beam being incident on said objective lens as a diverging beam, said first laser beam being incident on said objective lens as a beam having less divergence than said second laser beam, said objective lens converging the first laser beam on a data recording surface of a first optical disc through a first protective layer of the first optical disc, said objective lens converging the second laser beam on a data recording surface of a second optical disc through a second protective layer of the second optical disc, a data density of the first optical disc being higher than a data density of the second optical disc, a thickness of the first protective layer being smaller than a thickness of the second protective layer.

13. (New) The optical system according to claim 12, wherein said central area is a continuous surface having no stepped portions.

14. (New) The optical system according to claim 12, wherein a wavelength of the laser beam emitted by said laser source unit increases when the temperature increases, and wherein said objective lens is plastic, with a refractive index that decreases as the temperature increases.

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15. (New) The optical system according to claim 12, wherein said diffraction lens structure has a characteristic such that the spherical aberration of said objective lens changes in an under corrected direction when a wavelength of the laser beam incident on said objective lens increases.

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